IN THE CLAIMS

Please cancel claims 30 – 34, and 38 without prejudice or disclaimer of the subject matter claimed therein.

Please amend claims 19, 22, 35, and 37 as follows:

C1

19. A method for identifying compounds that regulate peripheral pathways of energy homeostasis, comprising:

a. contacting a putative regulatory compound with an isolated adipocyte; and,

b. detecting putative regulatory compounds that bind to a melanocortin receptor on said adipocyte, wherein said melanocortin receptor is selected from a group consisting of a MC1-R and a MC3-R receptor, and wherein putative regulatory compounds that bind to said melanocortin receptor on said adipocytes are identified as compounds that regulate body weight by regulating peripheral pathways of energy homeostasis.

C2

22. A method for identifying compounds that preferentially bind to and activate peripheral melanocortin receptors comprising:

a. contacting a putative regulatory compound with a cell which expresses a peripheral melanocortin receptor selected from a group consisting of MC1-R and MC3-R;

b. detecting whether the putative regulatory compound increases activity of said melanocortin receptor;

c. contacting said putative regulatory compound with a cell which expresses a melanocortin 4-receptor (MC4-R); and

d. detecting whether the putative regulatory compound increases MC4-R activity;

wherein putative regulatory compounds that induce greater activity by said peripheral melanocortin receptor as compared to said MC4-R are identified as compounds that preferentially bind to and activate peripheral melanocortin receptors.

35. A method for identifying compounds that increase body weight by regulating peripheral pathways of energy homeostasis, comprising:

a. contacting a cell which expresses a peripheral melanocortin receptor with a MSH or a MSH analog compound which binds to and activates said melanocortin receptor in the presence and absence of a putative regulatory compound;

b. detecting whether said putative regulatory compound inhibits said melanocortin receptor activity;

wherein putative regulatory compounds that inhibit said melanocortin receptor activity are identified as compounds that increase body weight by regulating peripheral pathways of energy homeostasis.